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CONSTRUCTION

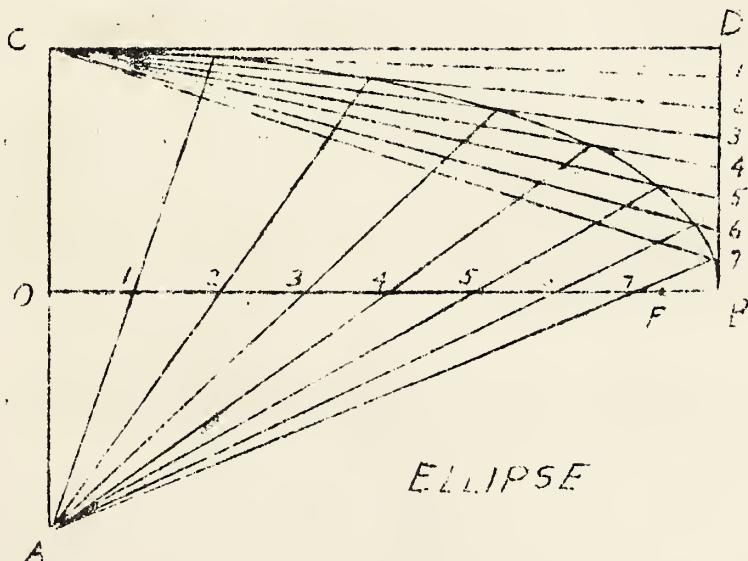


HINTS

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The construction season has begun in all of the Regions. Some of you have already devised new ways of doing some of the work. Help the others by passing the suggestions along. A sure way to reach all Regions is by printing in "Construction Hints." Contributors will be given credit for all articles published.

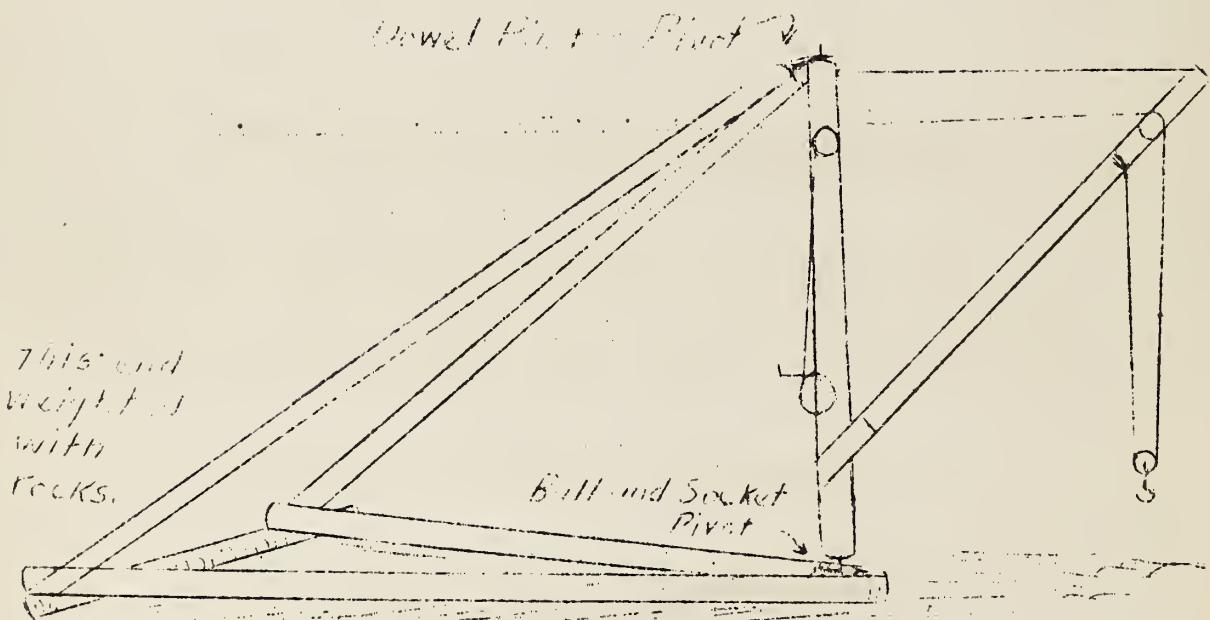
The Engineers may be interested in the following method of plotting an ellipse:



(Over)

The curve is symmetrical about OB and AC
 OC OA b
 OB a
 $OF c \frac{1}{2}(a^2 - b^2)$ focal length
 Divide OB and ED into the same number of equal parts
 Number the divisions from 0 to B and from D to B
 Draw lines from A to OB and from A to ED
 The intersection of lines of the same number determines
 the curve.

Below is shown a sketch of a stiff leg derrick which has proven successful in the Green Mountain National Forest.



PROTECT OUR FISH STREAMS - A. L. Anderson, W.O.

With the great increase in public and recreational use of the National Forests it is more necessary than ever to avoid construction practices that result in damaging the aesthetic values or destroying fish and game.

To enable construction men and engineers to better appreciate the effect of road building operations on streams, the following requirements necessary for a good trout stream are stated:

1. A constant supply of pure water
2. Temperature not to exceed 75° on hot days
3. Abundance of food
4. Pools for resting places
5. Cover for protection
6. Suitable areas for spawning

Road building operations along a stream may be detrimental to any one or all of the above requirements as follows:

1. The chemical composition of the water, particularly its acidity may be changed by the addition of large quantities of debris from construction operations.
2. The streams may become too warm in the summer if a large amount of the overhanging brush and trees along the creek are removed.
3. A large amount of fish food in streams consists of crustacea and immature stages of aquatic insects as well as vegetable forms which are found along the bottoms of streams. This growth of food is gradually developed in a stream through a long period of time. A large amount of silt thrown into a stream will cover up and destroy much of this source of food.
4. Large quantities of silt thrown into streams result in filling up the larger pools which the fish use for resting places.
5. By removal of overhanging brush, trees, banks and rocks, the hiding places of fish are destroyed. This makes them more susceptible to attack both from enemies in the water and out of the water.
6. Trout require gravel beds in which to construct their nests for spawning. If a stream is filled with silt these gravel beds become covered and sny eggs therein are smothered and prevented from hatching.

A large amount of money is spent annually by the Federal Government and the States to propagate fish and stock streams. Fishing is one of the most popular forms of recreation on the National Forests. Therefore, precaution should be taken in locating and constructing truck trails so as to keep the amount of damage done to fish life in the streams to a minimum.

